MENTAL DEFICIENCY AND MANIC-DEPRESSIVE INSANITY.

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The material on which this communication is based was obtained during a survey of all the patients in Severalls Mental Hospital, one of the objects of which was to obtain information about the incidence of the various types of mentally disordered and mentally defective patients. An account of this survey was published in the *Journal of Neurology and Psychopathology* for January, 1936. For the purpose of the present more detailed analysis of the results relating to manic-depressive insanity and mental deficiency, mental ability has been graded as (1) feeble-mindedness, including all patients certifiably defective, (2) dullness, i.e., subnormal ability without certifiable defect, (3) normal.

Of 287 patients suffering from typical manic-depressive insanity (involutional states are, of course, not included under this term), 24% were found to be feeble-minded, and 22% dull, a total proportion of 46% of subnormal mental ability ; male patients showed a higher proportion of mental defectives than female. It is not suggested that these figures represent the incidence of mental defect in manic-depressive psychotics. The greater tendency to relapse, as well as the actual defect, in the feeble-minded, results in their discharge-rate being lower than in those of normal intelligence. A better indication of the incidence is that ascertained from the new admissions of a certain year ; of the 81 manic-depressives admitted during 1934, 27% were subnormal (21% dull, 6% feeble-minded). These figures are high enough to be of considerable interest and importance ; they imply an ætiological factor more common than any other which has been suggested for this form of psychosis. For the moment I will leave this point in order to draw comparison between the subnormal and the normal groups in regard to the psychotic symptoms, prognosis, the presence of physical abnormalities known as stigmata of degeneracy, and the indications of any hereditary influence.

Symptoms.

A study of the patients and their records did not reveal any essential difference in the nature of the symptoms referable to the psychosis. In the manic state, the degree of exaltation, excitability and overactivity of mind and

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body are not apparently influenced by the extent of the patient's mental ability; in the melancholic phase, retardation of thought, self-absorption, agitation, suicidal tendencies and the various depressive ideas and delusions are as common in the subnormal as in the normal. Hallucinations occur more frequently in the subnormal (in 32% compared with 20% of the normal), but there is no constant difference in the nature of the hallucinatory percept. Visual hallucinations are relatively more frequent in the feeble-minded, but the symptom is so rare that the significance of this frequency cannot be estimated.

There is, however, an important and significant difference in the frequency with which the manic or the depressed state predominates. In a small proportion of manic-depressive psychotics phases of mania and melancholia alternate, with or without complete remissions, and are similar in both severity and duration, but in the great majority of patients there is a tendency for one morbid mood to predominate, the other being absent, or relatively infrequent, less marked, or of shorter duration. The group of manic-depressive patients of normal mental ability showed a predominating manic and a predominating depressed state in equal proportions (the percentages being 42 and 44, and sex making no appreciable difference). In dull patients depression is rather more frequent, but among the feeble-minded mania is far more common than melancholia; it was the usual state in 64% of male and 69% of female patients, melancholia in only 24 and 14% respectively. In other words mania is about four times as common as melancholia in the feeble-minded.

It is convenient to consider here a third group of patients, who, while showing a considerable degree of emotional instability, could not be regarded as typical manic-depressive psychotics. Their mood is subject to rapid changes; they are irritable and quarrelsome, sometimes morose and sulky, easily moved to temper or tears, often expressing warm affection and hostile resentment to the same individual within an hour or two. They are, in fact, manic-depressive in all but the extent and duration of their mood changes. In this survey 52 such patients were seen; their importance to the point under consideration lies in the fact that nearly all were feeble-minded, and in 85% manic symptoms were customary.

This preference for the exalted mood, so frequently manifested in the emotionally unstable and in the feeble-minded manic-depressive, finds an explanation in the fundamental difference between euphoria and depression as experienced by persons of normal mentality. A mood of slight exaltation is to be regarded as natural; it is pleasant to the individual, and its biological value is obvious; its maintenance is the object of many, perhaps most of our activities. Of the nature of depression there are many theories, none of them satisfactory; but we do regard it as abnormal to the extent that we dislike it, and endeavour to avoid conditions which induce it; and it has no apparent biological value. In the normal individual, emotions, like instincts, are kept

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under a voluntary control which has become habitual. (I use the term "control" in this sense; there is, of course, a voluntary control and inhibition of the actions which accompany the emotions; but introspection tells us that there is also voluntary limitation of the degree of an emotional reaction, and that it can likewise be enhanced.) Temporary removal of this control, as for example by moderate quantities of alcohol, results usually in elation, because that is the normal direction of mood change, and depression is not. In mental defectives of higher grade, inefficient emotional control allows frequent and extreme mood changes, and these again will be in the normal direction of elation and mania. Melancholia is therefore much less common; when it does occur, I suggest that the depression is reactive, only its degree being a consequence of mental defect.

Prognosis.

The chance of recovery from an attack of mania or melancholia does not seem to be in any way influenced by the presence or absence of mental defect, nor does it appear that in either group the duration of the psychosis is more prolonged. Relapses are more frequent in the feeble-minded, on account of their instability, and for the same reason the age of first certification is earlier —in our series it was below 30 in 40% of the subnormal and 24% of the normal. Terminal dementia is equally rare in normal and in feeble-minded manic-depressives.

Stigmata.

Under this term are included all abnormalities of anatomical development; it is recognized that not all developmental anomalies are indications of degeneracy, but as they are more frequent in the mentally defective, it is of interest to ascertain their incidence in the mentally disordered. Only male patients have been considered, the records of female patients being incomplete in this respect. It was found that stigmata were present in 20% of manic-depressive patients (a proportion similar to that in schizophrenics); they were closely associated with the degree of mental deficiency, being manifest in 9% of the normal, 13% of the dull, and 50% of the feeble-minded. Mental defectives without mental disorder showed them in 57%. Their incidence in the general population is not known, but comparison may be made with cases of mental disorder due to organic disease in persons of normal intelligence; the incidence in these is 12%—a figure which is probably not below that for normal individuals. The incidence of stigmata in normal manic-depressives is therefore similar to that in normal individuals, and in feeble-minded manic-depressives it approximates to that in non-psychotic defectives. Evidently the frequency of these developmental anomalies in patients with manic-depressive psychosis is to be associated with the mental defect, not the mental disorder.

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Inheritance.

Incidence of mental disease or deficiency among the relatives of psychotics has been considered only in so far as immediate relatives (i.e., parents and sibs) of our patients were known to be affected. Expressed in terms of the number of affected relatives of 100 patients of any clinical group, the incidence for all manic-depressives is 46—a much higher figure than in any other type of psychosis. Is this frequency also associated with the prevalence of mental defect? The incidence is certainly higher in subnormal manic-depressives—in the normal, dull and feeble-minded groups the figures are 43, 65 and 36 respectively; but it is only 21 in non-psychotic defectives, and it is the same in patients with insanity due to organic disease. That for schizophrenics without mental defect (28 per 100) is of the same order. Evidently the frequency of mental abnormality in the near relatives of manic-depressives is not to be associated with the frequency of mental defect; nor does it appear to be a characteristic of the constitutional psychoses as a whole, but rather of manic-depressive insanity as an entity.

So far, the relationship of manic-depressive insanity to mental deficiency has been investigated by a consideration of the psychosis. Let us now approach it from the other side and consider the moods of oligophrenics. Idiots need not delay us; the placid have little or no feeling, and the conduct of the excitable is too erratic for any accurate estimation of the amount and quality of their emotional reaction. With regard to imbeciles and the feeble-minded seen in mental hospitals, instability of mood is far more common than stability. As already mentioned, the group of feeble-minded patients without mental disorder show frequent and sometimes extreme changes of mood, and in the great majority disturbance of their unstable equilibrium is in the direction of excitement and manic symptoms. This is also true of imbeciles certified under the Lunacy Act; in three-quarters of them certification has been necessitated by symptoms of instability. Most imbeciles are in mental deficiency institutions, of which I lack experience, and the authorities whom I have consulted are not in agreement on this subject, though the higher grade oligophrenics are usually said to be unstable. It may be also, that as imbeciles are usually under institutional care from an early age, protected from circumstances which are disturbing to emotional equilibrium, they have to some extent developed a stability within the limits of their sheltered life. Lacking such artificial support, it seems probable that all imbeciles and feeble-minded would, in failing to adapt themselves to a normal environment, reveal qualitative or quantitative abnormalities of mood as well as lack of intelligence; and unless we are prepared to postulate a considerable degree of independence of the various mental functions it is difficult to see how it could be otherwise. For emotional control, like subordination of the instincts, is a function of the highest and most recently acquired cerebral processes; if these are impaired,

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full power of emotional restraint can hardly be maintained—it is affected by alcohol, for example, at least as early as are the properties of association, judgment and reasoning.

The frequency of mental subnormality in manic-depressives, the similarity of symptoms, course and prognosis of the disorder in normal and subnormal groups, and the mood instability shown by many mental defectives, all indicate a close association between the two conditions. The suggestion that two different conditions can have the same genetic basis has been severely criticized, but I fail to see why it should be impossible. Examples of its apparent operation in general pathology are easily found; the many manifestations of early and progressive neuronic decay (the familial and hereditary ataxic paraplegias and the myelopathic muscular atrophies) are different clinical conditions only on account of the different localities of the same abiotrophy; and this leads one to inquire on what grounds two conditions are to be regarded as "different". Obviously the social and legal separation of mental defect from mental disorder can have no value in the argument; clinical dissimilarity does not exclude pathological identity; and the pathologist, so far as oligophrenia and the constitutional psychoses are concerned, has not been able to offer much assistance. It seems that we are very far from being in a position to assert that two conditions, clinically different, cannot have the same genetic basis.

I am not, however, inviting you to suppose a common cause for mental deficiency and manic-depressive insanity as two different entities. I am suggesting that we regard the psychosis as a manifestation of mental defect. We cannot frame our definition of the subnormal mind entirely within the limits of intellectual capacity, nor even with the impairment of such capacity as an essential feature. It is not unknown for certification under the Mental Deficiency Act to be necessitated in persons whose intelligence is quite up to the average, but who from an early age have shown such emotional instability that they completely fail in social adaptation. Once we admit that there can be, by reason of mental defect, excessive emotional reaction (or deficient emotional control), there is nothing to prevent us from placing in that category all violent mood changes which are apparently spontaneous, or which, being reactive, are excessive. I will admit that the normal stability from which there is an alleged departure is not fixed, but arbitrary, and that the extent of such departure, to constitute a psychosis, is a matter of degree, the limits of which cannot be determined. Is not this in accordance with our attitude to intellectual deficiency? There is not, and there never can be determined, on any social, biological or other scientific basis a level above which mental ability is normal, below which it is abnormal; and precisely the same must be said of mood stability. There might be an individual so intelligent that he could reasonably regard all the rest of us as mental defectives; there might be one so stable of mood that he can call us all manic-depressives. It does not

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alarm us. We accept our relative defects with equanimity, and we can still continue to regard as mental defectives all others below an ill-defined standard of intelligence we arbitrarily select, and as manic-depressives all whose defect lies mainly in their instability of mood. We shall never be able to make it anything but a relative matter; the subnormal will always shade imperceptibly into the normal, the unstable into the stable, and the combination of lack of intelligence with deficient emotional control into that of relatively good intellectual standard with comparative stability of mood.

I have purposely abbreviated this paper so that I might claim your indulgence while answering some of the questions which have been put by Dr. Slater during his searching criticism of the investigation which formed the basis of my own communication. His comment that our records constitute a "return to the old polymorphism" has, of course, nothing to do with their accuracy. Our research was undertaken with the object of ascertaining and recording facts, not in order to promote any theory, old or new. As we did not classify manic-depressives in various degrees of purity, and involutional conditions were stated to be excluded, the reference to insufficiently strict definition of clinical groups can only suggest erroneous diagnosis. This is always possible, and certainly did occur in some cases; but many of these patients have been under our observation for ten or twenty years, and it is difficult to imagine that errors of diagnosis coud have been sufficiently numerous seriously to affect the results. In reply to the request for the number of patients showing symptomatic anomalies, I can only ask who is to decide what is anomalous. Few will deny that hallucinations can occur in manic-depressive insanity, though we may differ concerning their frequency; in any case, their presence as the result of fever or drugs could hardly have influenced a diagnosis made, in the great majority of cases, after long observation.

Dr. Slater remarks that even if we could expect to find more defectiveness than in an average normal population, we could not have been expected to find all the amount we did. The obvious explanation is that we were dealing with persons selected from the average population, and the high incidence of mental defect in them could only indicate an association between mental deficiency and the selecting agent; this selecting agent was the development of a psychosis. This explanation Dr. Slater rejects in favour of the one that diagnosis of mental defect was faulty, and he queries our experience of the methods. I may perhaps be permitted to express some surprise that one who professes to be in touch with modern work on this subject should inquire whether Dr. Lionel Penrose has ever used the standardized questions before. We have been informed that a competent psychologist will take from half to one hour to assess "the intelligence of a normal individual". Perhaps Dr. Slater means "the intelligence of an apparently normal child"; but to determine in which of some sixteen or more grades of intelligence a child should be placed is very different from deciding whether a man is subnormal,

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feeble-minded, or an imbecile. My own experience of clinics is that it is much more difficult to ascertain mental defect in a child (whose future is unknown) than in a mental patient whose record is complete. For the population of a mental hospital is not made up largely, as Dr. Slater thinks, of the stuporose, self-absorbed, scatter-brained and retarded, and it would probably surprise him to realize the extent to which our subjects co-operated in this investigation. Undoubtedly there are some whose mental condition and lack of complete history prevent any estimation of the initial mental capacity, and for the purpose of an investigation such as this they have to be regarded as normal.

During the last few years medical science has come more and more to realize that the nature of disease depends not only on the direct cause—toxic, microbic, irritative, etc.—but also on the soil in which such causes flourish. Psychiatry has applied this recognition in some directions, but very little attention has been given to the way in which mental disorder can be modified by mental defect, and I suggest to you that if on the immense material we have at our disposal, such investigations are carried out without bias for or against any preconceived theory, the results will not be without value.

I do not propose to enter into a discussion on Dr. Slater's paper, but I would ask him to answer two questions in order to make quite clear certain points on which he was not definite :

1. With regard to the central group of manic-depressives he investigated, were the patients all examined by him during their illness, or was his information gained by a study of records only ?

2. With regard to the relatives of these patients, quoted as manic-depressive, cycloid psychopath, etc., to what extent is the investigation the result of his own observation of these relatives, and in what proportion of them did he rely only on reports about them ?

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Discussion.

Dr. REES THOMAS said he owed an apology to the meeting for appearing to speak for Dr. Schneider, and owing to the short time available for preparation he would confine himself to general impressions. He would first quote some of the figures given in the original communication by Drs. Duncan, Penrose and Turnbull, i.e., concerning the cases on admission. Of the schizophrenics, 37% were dull, backward or defective; of the manic-depressives, 27%, of the organic psychoses, 22%. He did not know whether the difference between the 27% and the 37% was significant, but it seemed to him that it could not be taken to show a high incidence of manic-depressive conditions among defectives. The other figure which was interesting, apart from this problem, was that there were 17% non-psychotic patients in the Severalls Hospital population, as compared with 14% of defectives in a number of mental hospitals in this country; the latter percentage was estimated as the result of a survey made by the Board of Control.

One point he wished to make—and he made it now because it had great importance in this connection: if it was true that patients suffering from manic-depressive conditions tended to be defective, the question arose at what stage deficiency originated. He had a strong feeling that much of the apparent defect which was revealed afterwards arose during the course of the psychosis, and that many of the psychoses, as medical men knew, arose at the period of childhood, puberty and adolescence. He had known cases which seemed to be subjects of obsessional conditions showing marked mental clouding during the years 14 to 18, and, in consequence of that, coming under the Mental Deficiency Act, and being treated as defectives. He did not suppose that cases admitted to Severalls Hospital were people of 17 to 20 years of age; it might be that the mental disorder had existed a considerable time, and that there had been mental changes arising during the school age; and these changes, though not gross, might be very important for the purposes of this investigation. It did not follow that the defectives were of high grade; it might be a severe secondary defect arising in consequence of a psychosis beginning earlier.

Taking a group of 1,000 defectives of dangerous propensities, from his knowledge of them he was able to say that manic-depressive psychosis was a relatively rare condition. He investigated this subject some years ago, and he could say that 50% of the cases at Rampton at some time or other suffered from some form of psychosis, and that manic-depressive insanity was relatively rare. There was a temptation to say that the manic-depressive condition did occur in mild form, for the reason that a patient who was in a condition of euphoria would ask the question "When shall I be discharged?" The patient would continue to worry about that for two or three months, and then, growing tired of doing so, would say "I will not bother any more". He was disappointed, quiet, mischievous, perhaps troublesome, and there was a tendency to regard the cycle as a manic-depressive condition. If cases like that were included, the incidence of cases of manic-depressive disorder would appear to be higher. The true manic-depressive condition was rare among the criminal defectives who came to the State institution, and if it was common amongst defectives generally it must be regarded as a socialising factor. On this basis if one could inoculate the population with a manic-depressive condition it might be possible to wipe out criminality.

Dr. Duncan had much to say about emotional change and instability. He, the speaker, wished to suggest that the characteristic of the emotional change in instability was its explosiveness, not its cyclic form; and further, if a condition which appeared at one stage to be instability became a psychosis, the psychosis was never of a manic-depressive character; it was schizophrenic. He could quote many cases of patients who were sent in after having committed absurd or aimless crimes. At this stage the clinical picture was one of instability. In a few years they had passed on to become definite schizophrenics, but never manic-depressives.

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Dr. LIONEL PENROSE said he had made a few notes on the subject of the problem which Dr. Slater had raised, and which had since been discussed, and he hoped that what he had to say would contribute to the general enlightenment. He admitted to some fog on the whole subject, however, and even on mental deficiency.

There were two fundamental difficulties in this discussion, and they were the types of difficulty which, he thought, formed the basis of good arguments, rather than good scientific work. The first thing which struck him particularly, and which tended to make these differences between the points of view of some of the speakers more marked, was the selection of cases. He had had some experience of a mental deficiency institution, and in making this survey in a large hospital he had had some experience of a large mental hospital, and he knew well that one met the same types of patients in both institutions, that it was a matter of accident, in many cases, as to which institution they went into. From the scientific point of view these accidents were irrelevant, but from the social standpoint they might be very important. One did not want these accidents of certification under one or other law to affect one's judgment in the important problem whether manic-depressive insanity was caused by mental defect, or *vice versa*; and he suggested that the most important contribution which he and his colleagues intended to make in the Severalls survey was to discover what kinds of patients were in the mental hospital, what patients were likely to be certified under what Act, and how long they stayed there. They evolved a new classification because it seemed important to distinguish between innate defect of intelligence, as understood by psychologists, and mental disorder as understood by psychiatrists. It might be said that this distinction could not be made, and Dr. Duncan has mentioned some of the difficulties. Vocabulary tests were mainly used for determining initial mental grade in deteriorated cases.

The second thing which he wanted to mention was that the standard of defect which Dr. Slater referred to in German work was not necessarily the same as the standard of defect in England, and, as Dr. Duncan said, a person whose intelligence, as judged by psychologists, was normal, might be certified because of behaviour. Therefore the criterion of even certifiable defect was not a very good one, but it had to be used for this investigation. He and his colleagues did not intend to put people whom they did not consider intellectually defective into this category.

One could look at the problem from the point of view of the defectives themselves. One could take a group of defectives and find out how many had mental disorder and of what kind. Rampton was an institution in which patients were selected by gross behaviour, whereas in the ordinary institution they were selected mainly because of their intellectual defect. He had not actual figures to give to the meeting, but he thought it could fairly be said that manic-depressive insanity did occur among at least a few of their patients certified under the Mental Deficiency Act, though if the condition was severe they would be tranfserred under the Lunacy Act. He thought he was right in saying that the patient who had changes of mood was more typical of mental deficiency which did not amount always to insanity. There were defectives who had elated moods, aggressive and violent moods, which sometimes alternated with depressed moods, and others had long periods of depression. He could not say whether those people were all suffering from manic-depressive insanity, or whether, even, they were mild schizophrenics. He thought the question had not been studied sufficiently by clinicians to enable us to say under which heading they properly came. Among severe grades of mental defect —and here he differed from Dr. Duncan—he thought that psychosis occurred frequently, and he agreed with Earl, who thought that katatonic psychoses occurred in many cases. Cases of Kraepelin's dementia præcocissima were usually certified under the Mental Deficiency Acts. Epileptic psychosis was the most prevalent among the mental defectives in institutions ; he thought that certain of the violent mood changes which patients had might be epileptic equivalents.

There were also one or two things he wanted to say about heredity, a question which was raised by Dr. Slater, and also dealt with by Dr. Munro. He considered that the findings of Tredgold and some of the other early workers in this

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field of genetic investigation were incontestable. He did not say that they were infallible in their observations, but that their general impressions were true. To say that one agreed with the facts had nothing to do with accepting the idea of polymorphism; the explanation was in question, not the facts. Mental disease was very peculiar in the matter of family histories. One might investigate colour-blindness or hæmophilia and find a perfect Mendelian picture, but it was very rare to find such a thing in mental disorder or mental deficiency. He only knew four conditions which ran so: amaurotic idiocy (two types), phenylketonuria, and Huntington's chorea. There were also one or two more doubtful ones which were more loosely associated with mental deficiency, like Friedreich's ataxy. Even in those former conditions the matter was not always a straightforward one. In a family with Huntington's chorea, from generation to generation, there could be a wide difference in the age at onset; it might be that the onset was very early or very late, and the patient might be mentally defective, or he might be of normal intelligence, and even without a psychosis, and yet have signs of Huntington's chorea. It appeared that mental disease and deficiency were less clearly cut characters than physical diseases; they were associated with physical characters, such as chemical changes in certain cases; but it did not follow that in the individual of the same genotype, the same psychosis would develop. Therefore he thought that the method of investigating family trees by taking a set of cases clinically alike might not be the best method of studying heredity.

He said that he was engaged on work, not yet finished, concerning the incidence of mental disease in the families of mentally defective patients. Out of about 600 cases which he had analysed so far, he found that mental disease (psychosis) was commoner in parents of mental defectives than in the general population, i.e., about 5% had gross mental disease sufficient to cause certification. The mental diseases met with among them were of all the different types; but the commonest mental disease among the sibs of mental defectives was schizophrenia (dementia præcox). The commonest mental disease among parents or uncles or aunts was some type of manic-depressive reaction. He was not prepared to say whether they were pure manic-depressive psychosis cases or not, but the manic-depressive type seemed to be the commonest, whether it occurred in early life, or at the involutionary stage, and suicide was extraordinarily common. That was only a partial and rough analysis, but he wanted to draw attention to a way of looking at the problem which might result in the discovery of peculiar things. He did not think it likely that single gene differences would explain the majority of types of mental disease or mental deficiency. Probably the same gene under variable environmental and genetic conditions might give rise to quite different clinical entities, and in other cases its effects might be suppressed. That was not polymorphism, because the meeting was not considering anything in the nature of degeneration of the plasma. Analysis of the behaviour of highly modified genes was difficult, but he thought it could be attempted.

Prof. HENDERSON said he did not want to add to the controversy which this topic had raised; it was a very controversial subject, but he would like to pour a a little oil on the waters.

It seemed to him that this problem had been attacked from two different angles. On one hand there were men like Dr. Slater who were looking at this subject from the predominantly manic-depressive aspect, whereas Dr. Penrose, Dr. Duncan and Dr. Turnbull were thinking of it essentially from the angle of mental deficiency. He might be doing both sides an injustice when he said that, but if that was a possibility, he thought it was easy to see how the controversy had arisen. He thought that anyone who had been occupied with mental hospital work over many years would feel rather strongly that if Dr. Duncan and his co-workers' contribution was to be accepted now on the basis of this investigation, it would be necessary to alter one's entire conception of what constituted manic-depressive states, and of all the other psychotic states treated in mental

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hospitals. He said that for the following reason: In dealing with states of mental deficiency, all recognized that such patients were subject to emotional outbursts, expressed very well by Dr. Rees Thomas when he said it was a state of instability which showed itself in explosiveness, which was essentially episodic, and which very rapidly passed off. He never had any hesitation in saying, where he had a mental deficiency case associated with an episodic state, that that state would run a more acute course and would be more transitory and was likely to be more recurrent than with the ordinary manic-depressive patient. If members wished to call these manic-depressive states they must do so; he hesitated to do so; he thought they were emotional upsets in cases in which mental deficiency was the predominant factor. For an analogy one had only to consider the organic psychoses and think of general paralysis. General paralytics could be divided into those who showed manic episodes and those who showed depressive states. One did not say, therefore, that those general paralytics were manic-depressives, but it was recognized that the general paralytic process was the predominant one, hence the name given. It was much the same with arterio-sclerotics; many of them showed emotional fluctuations, but they were called arterio-sclerotics, not manic-depressives.

Coming back more specifically to this discussion, to attempt to estimate mental deficiency in a group of psychotics was very difficult. Dr. Slater had pointed that out extremely well. In Glasgow, when the speaker was there, an investigation was carried out by Leonard Findlay with regard to the amount of mental deficiency in association with encephalitis lethargica. Findlay attempted to prove that after those patients had become ill with encephalitis they were mentally defective, on the basis of the intelligence tests given. That was a fallacy. If one was to judge whether people were mentally defective, there must be an examination not merely when they were psychotic, but also before the psychosis developed. It was only in that way that a true estimate would be obtained of whether mental deficiency was the predominant factor, or whether the emotional instability was the predominant factor.

Those were the main points which he wanted to discuss. It was rather a paralysing thought to him to have this mental deficiency basis of manic-depressive states pushed. If that view was pushed, he thought that, almost inevitably, one would become encompassed with a feeling of greater therapeutic nihilism than was necessary or justified.

Dr. T. A. MUNRO said he thought that the question largely came down to this. It might be allowed that families existed in which manic-depressive insanity was associated with mental defect. There were families in which manic-depressive insanity occurred alone, and these families were more free from defect than the general population. The point seemed to be, what was the incidence of these types? Surely it was a matter of figures, not the fact of existence of different types, about which one could not argue. The diagnosis of mental deficiency in people who had manic-depressive psychosis was not insuperable to a clinician. One got it often without asking for it by applying to the mother, who would tell one, right off, that "Johnny learned late to walk; that Johnny did badly at school", and so on, giving a definite history of feeble-mindedness. Such facts were more reliable than tests given in a mental hospital to patients suffering from psychoses.

Prof. MACDONALD: I agree with every word Dr. Munro has said.

Dr. SLATER, in reply, said the family tree shown by Dr. Munro was a very interesting one. A collection of any number of family trees was a collection of special instances. This was a very important method of investigation, and was a different method from the statistical one; it was upon the latter that his own work was based. In this list was seen a defective family showing profound mood changes. It might

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be something on its own. He did not say there was any necessity to include mood changes of grossly mentally defective people among the manic-depressive psychoses; and that, as Prof. Henderson remarked, was the fundamental point of difference between himself and Dr. Duncan. The latter took all kinds of emotional instability as one or other form of manic-depressive insanity. His, Dr. Slater's, point of view was different; he thought reactive mood changes of the normal individual, mood changes in the mentally defective and of the psychopathic personality were different from manic-depressive insanity. Dr. Duncan had construed the speaker's remarks about insufficient accuracy in clinical grouping as referring to errors of diagnosis. He, Dr. Slater, did not say, nor did he mean, errors in diagnosis. It was a different scheme of diagnosis from that which he had been using. Mood changes of paralytics and arterio-sclerotics were not usually taken as manic-depressive insanity.

Two questions had been asked of him concerning the family investigations which he presented. Actually the material on which his paper was based consisted of Kraepelin's original cases of manic-depressive psychosis. Very few of the patient's relatives had actually been seen by him.

Dr. Duncan, in reply, said he had listened with very great interest to the criticisms which had been brought forward that afternoon, and he was sure he would find them of great value in future work arising out of the survey at Severalls Hospital.

He was interested in the remarks of Dr. Rees Thomas, whom he understood to say that 50% of the cases at Rampton were diagnosed as psychotics. That answered one of the points put by Dr. Slater, doubting that a relatively high proportion of the mentally defective could become insane. Evidently they could. Dr. Rees Thomas asked at what period this disorder arose. That could only be entered into by explaining again that he, the speaker, did not associate mental deficiency and manic-depressive insanity as two conditions having the same cause; he regarded the psychosis as a manifestation of mental (not necessarily intellectual) defect. It was not known why primary aments were mentally defective, and he had no idea why a manic-depressive patient was manic-depressive. If he were asked to state, more exactly, when the disorder or defect, whatever it was, arose, he could only reply that he thought it was before birth. The best analogy he could think of was one adopted by Dr. J. S. Collier ten years ago when he gave his Presidential Address to the Neurological Section of the Royal Society of Medicine, on the pathogenesis of cerebral diplegia. Seeds or very young seedlings, when attacked by frost, might be killed at once. Or they might grow up stunted and weak—corresponding to the feeble-minded—and liable (like the feeble-minded) to develop disease. Or they might grow into apparently strong healthy plants, but later show deterioration and abnormalities—corresponding to the psychotic. The disorder might become apparent at any age, but the cause must have operated before birth. The process was similar to that which seemed to occur in the familial abiotrophies.

Dr. Rees Thomas used the term "instability" in a sense different from his own. As the speaker saw it, this instability was not necessarily explosive. Was Dr. Rees Thomas perhaps getting his idea of "explosive" from explosive conduct? Emotional instability was shown by excessive or causeless fluctuations from "normal" stability, but it need not be violent or explosive. He agreed that instability of an explosive type was more common in children, and he was told, it also occurred in some primitive backward races.

He had also listened with much interest to the remarks of Prof. Henderson, who seemed to deplore the association of manic-depressive insanity and mental deficiency because it would mean an alteration of one's whole conception of manic-depressive insanity. He had, in fact, no fixed conception of the nature of manic-depressive insanity, and was prepared to use the results of his own or anybody else's research work to assist him in forming an idea of its pathogenesis.

https://doi.org/10.1192/bjp.82.340.635 Published online by Cambridge University Press

As to the diagnosis of mental defect among the mentally disordered, any of those present who had attempted to do it might have been—as he was—rather astonished at the comparative ease with which, in many cases, it could be done. Some appeared to be of the opinion that it would be very difficult in a mental patient to ascertain the degree of mental deficiency; but when he came to do it, having the record of the patient before him—a record which one could take steps to make as complete as possible—it was found (and he thought Dr. Penrose would agree) to be easier than he had anticipated. He had found it very much easier to decide that a given patient in a mental hospital was or was not mentally defective (he could not always say to what degree) than he did a child of ten years of age passed on to him at one of the clinics.

With regard to mood changes in mental defectives, Dr. Slater had suggested that these should not be regarded as manic-depressive. That, at present, was a matter of individual opinion. He, the speaker, was not saying one ought to. One did not necessarily include mental defectives who showed some degree of emotional instability as psychotics, but he suggested that they constituted a link between the two extremes to which he had referred.

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